

# THE WILSON BULLETIN

A QUARTERLY JOURNAL OF ORNITHOLOGY

*Published by the Wilson Ornithological Society*

VOL. 112, NO. 3

SEPTEMBER 2000

PAGES 305–443

*Wilson Bull.*, 112(3), 2000, pp. 305–312

## A NEW SPECIES OF FLYCATCHER (TYRANNIDAE: *MYIOPAGIS*) FROM EASTERN ECUADOR AND EASTERN PERU

PAUL COOPMANS<sup>1</sup> AND NIELS KRABBE<sup>2,3,4</sup>

**ABSTRACT.**—A new species of New World flycatcher in the genus *Myiopagis* (Aves, Tyrannidae, Elaeniinae) is described from Andean submontane forest of eastern Ecuador and eastern Peru. It appears to be most closely related to *M. caniceps* of lower elevations and more distantly to *M. gaimardii*, with which it is syntopic. *Received 1 Dec. 1999, accepted 10 May 2000.*

The Tyrannidae, one of the World's largest avian families, harbors a vast array of confusingly similar species. Since the discovery that *Empidonax traillii* and *E. alnorum* are two partly sympatric sibling species with distinctive innate songs (Stein 1963, Traylor 1979, Kroodsma 1984), differences in suboscine vocalizations have increased in value as taxonomic characters (see Ridgely and Tudor 1994, Krabbe and Schulenberg 1997, Isler et al. 1998), inspiring field workers to learn to identify New World flycatchers by voice. We suspect that the growing knowledge of bird sounds in the Neotropics will shed further light on the taxonomy of the Tyrannidae, and as in this case, will lead to the discovery of additional species. Perhaps surprisingly, only

seven New World flycatchers have been described from South America during the last two decades (Fitzpatrick and O'Neill 1979, Teixeira 1987, Graves 1988, Willis and Oniki 1992, Gonzaga and Pacheco 1995, Fitzpatrick and Stotz 1997, Schulenberg and Parker 1997).

In June 1992 P.C. tape-recorded and observed a flycatcher at an elevation of about 1000 m near Zamora in southeastern Ecuador (tape-recording archived at Library of Natural Sounds, Cornell Laboratory of Ornithology, LNS cat. no. 60232). He could not assign the vocalizations to any species he knew. By 1994 he had compared the vocalizations with all similar species and became convinced that the Zamora birds represented an unknown species. In October of that year we collected a pair near Zamora. N.K. later compared these specimens with all similar forms in the American Museum of Natural History (AMNH) and the Academy of Natural Sciences of Philadelphia (ANSP). In 1996 we collected two additional specimens, this time on the slopes of Volcán Sumaco, in northeastern Ecuador. All four Ecuadorian specimens are housed in Mu-

<sup>1</sup> Condominio Fuente de Piedra, 10–12, Calle San Ignacio, Quito, Ecuador; E-mail: coopmans@pi.pro.ec

<sup>2</sup> Zoological Museum, Univ. of Copenhagen, Universitetsparken 15, DK-2100 Copenhagen, Denmark.

<sup>3</sup> Present address: Museo Ecuatoriano de Ciencias Naturales, Sucursal 7, Casilla 8976, Quito, Ecuador; E-mail: NKrabbe@pi.pro.ec

<sup>4</sup> Corresponding author.

seo Ecuatoriano de Ciencias Naturales, Quito (MECN).

N.K. located an additional specimen in AMNH (cat. no. 819936) that had been collected in southern Peru and labeled as *M. gaimardii*. The five specimens clearly represent a distinct new taxon, which we name:

### FOOTHILL ELAENIA

#### *Myiopagis olallai*, new species

*Holotype*.—MECN 6902, adult male collected by N. Krabbe and P. Coopmans on 23 October 1994 at Río Bombuscaro (04° 07' S, 78° 58' W) 5 km south-southeast of Zamora, Province of Zamora-Chinchipe, Ecuador, elevation 1000 m. Blood sample NK1–23.10.94, stored in Zoological Museum, University of Copenhagen.

*Paratype*.—MECN 6903, adult female collected together with the holotype. Blood sample NK2–23.10.94.

*Diagnosis*.—Sexes alike. Plumage similar to females of the sexually dimorphic *M. caniceps*, most closely resembling the Amazonian *M. c. cinerea*, but crown neutral gray instead of olive and coronal patch concealed and entirely pure white instead of semi-concealed and mostly yellow. Also like females of *M. caniceps absita* of Darién and *M. c. parambae* of western Ecuador and western Colombia, but differs by larger size; darker and faintly streaked instead of unstreaked breast; yellow instead of whitish lower throat; darker bill; darker back; and darker and pure gray crown, the latter being slightly tinged with olive in *M. c. absita* and *M. c. parambae*, especially on the nape. Differs from *Myiopagis gaimardii* by having a greener (dark olive green) back without any brownish wash; pure dark gray rather than gray-brown crown; shorter and broader crown feathers; pure white instead of yellowish white or pale yellow coronal patch; by having three well-defined instead of two ill-defined wingbars (*M. gaimardii* rarely shows faint traces of a third wingbar); by coronal patch being more concealed; and by having the white feathers of the coronal patch tipped with gray instead of blackish gray-brown.

Acrotarsal scutes less exaspidéan (Ridgway 1901:328) than in *Elaenia* (Zimmer 1941a), reaching the posterior edge of the outer side

of the tarsus only in its distal part and showing a broader plantar space between the acrotarsal edges on the inner side, slightly broader than in *Myiopagis caniceps* (Fig. 4). Plantar space smooth, lacking the small scutes on the inner side of the tarsal joint often indicated in *Elaenia* (Fig. 4) and well developed in *Pseudelaenia*. (Zimmer 1941b).

*Description of the holotype*.—Capitalized names and numbers of colors follow Smithe (1975). Male. Crown Dark Neutral Gray (83). Concealed crown patch white, all white feathers with gray tips. Back Olive Green (47). Wings Blackish Neutral Gray (82) washed with Olive Green (47) on the lesser coverts. Wing coverts with three well-defined bars that are slightly paler than Sulphur Yellow (57) and confined to the edges of tips of outer webs, on greater coverts 1 mm wide and tapering to points along outer edges 5 mm from tips, on median coverts 1.5 mm wide and tapering to points 3.5 mm from tips, on lesser coverts as diffuse spots, 1–1.5 mm wide, spots on inner lesser coverts washed with Olive Green (47). Tertiaries with well-defined, 1–2 mm wide, Sulphur Yellow (57) edges of outer webs. Secondaries narrowly edged Sulphur Yellow except for the basal 5 mm of their exposed parts. Primaries very narrowly edged Olive Green (47) except on the terminal 10 mm. A small, horny spur present at the edge of the wing near the tip of the alula. Tail slightly browner than wings and narrowly edged Olive Green (47). Lores, eye-ring, subocular region, and cheeks mottled gray and white. Throat whitish slightly mottled with gray. Rest of underparts, wing linings, and edges of inner webs of remiges, a little lighter and yellower than Sulphur Yellow (57), lower throat and especially breast clouded with Olive Green (46) producing a slightly streaked effect. Iris brown, bill and feet blackish, extreme base of underside of mandible brownish gray. Body mass 14.0 g. Light fat. Skull 10% ossified. No Bursa of Fabricius. Testes 2 × 4 mm. Stomach: 6 mm black beetle and 40 mm caterpillar. Wing, tail, and body molting (not affecting measurements). Wings 61 mm, tail 51 mm, tarsus 17.2 mm, bill from skull 12.3 mm, gonys 5.9 mm, bill height at fore edge of nostrils 3.3 mm, bill width at fore edge of nostrils 3.7 mm.

*Description of the paratype*.—Female. Sim-



TABLE 1. Measurements of the five known specimens of *Myiopagis olallai*.

Catalog no.	Sex	Body mass g	Wing flat mm	Tail mm	Tarsus mm
AMNH 819936	M		60	50	17.9
MECN 6902	M	14.0	61	51	17.2
MECN 7141	M	11.1	60	53	16.0
MECN 6903	F	12.0	59	47	17.0
MECN 7142	F	11.3	56	48	15.9

ilar in structure and coloration to the holotype. Iris brown, bill and feet blackish, extreme base of underside of mandible gray-brown. Body mass 12.0 g. Light fat. Skull 50% ossified. No Bursa of Fabricius. Ovary 6 × 2.5 mm, inactive. Oviduct straight. Stomach: two caterpillars. Tail and body molting (not affecting measurements). Wings 59 mm, tail 47 mm, tarsus 17.0 mm, bill from skull 12.0 mm, gonys 5.9 mm, bill height at fore edge of nostrils 3.2 mm, bill width at fore edge of nostrils 3.5 mm.

*Additional material examined and variation in the series.*—An adult male (MECN 7141) and a female (MECN 7142), were collected together in northeastern Ecuador (Napo Province, 00° 43' S, 77° 38' W, 1000 m) on 17 December 1996. They are similar to the types in coloration but are slightly smaller (see *Measurements*). The female is not fully adult, showing some buffy brown feathers on the nape and a buffy brown wash to the tips of most rectrices and wing-coverts. An adult male (AMNH 819936), collected in Peru (depto. Ayacucho, 12° 39' S, 73° 40' W, 890 m) by John S. Weske on 13 July 1966, also clearly represents *M. olallai*. It is virtually identical to the type, differing only by being paler (less olive) on the breast, by having slightly paler wingbars and wing panel, and by having a slightly lighter gray crown.

*Measurements.*—*Myiopagis olallai*, *M. caniceps cinerea*, and *M. g. gaimardii* are similar in measurements of body mass and length of wings, tail, and tarsi (Table 2), as well as in bill dimensions.

*Vocalizations.*—The song of *M. olallai* consists of an about 2 s long harsh trill at a rate of approximately 14 notes per second at 4–6 kHz, distinctly rising in pitch, and preceded by introductory notes that vary in num-

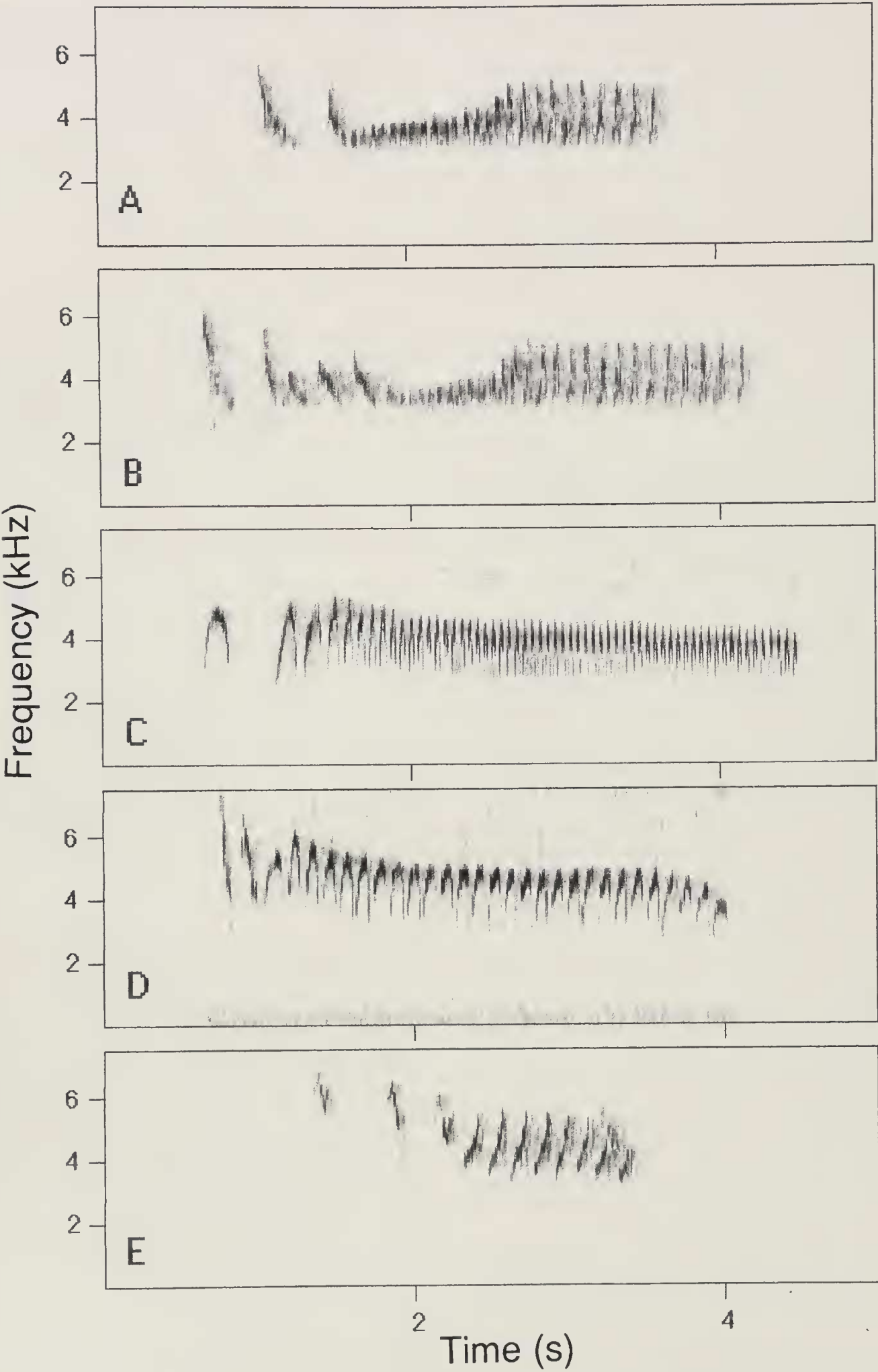
TABLE 2. Comparative measurements of *Myiopagis olallai*, *M. caniceps cinerea* and *M. g. gaimardii*.

	<i>M. olallai</i>	<i>M. caniceps cinerea</i>	<i>M. gaimardii gaimardii</i>
Body mass			
males	12.6 ± 1.5 <sup>a</sup> (11.1–14.0) <sup>b</sup> <i>n</i> = 2 <sup>c</sup>	10.7 <i>n</i> = 1	12.5 ± 0.2 (12.3–12.7) <i>n</i> = 3
females	11.7 ± 0.4 (11.3–12.0) <i>n</i> = 2		12.0 <i>n</i> = 1
Wing flat			
males	60.3 ± 0.5 (60–61) <i>n</i> = 3	63.6 ± 2.4 (59–67) <i>n</i> = 9	62.3 ± 2.1 (58–66) <i>n</i> = 15
females	57.5 ± 1.5 (56–59) <i>n</i> = 2	58.0 ± 1.4 (56–59) <i>n</i> = 3	58.5 ± 1.7 (55–61) <i>n</i> = 13
Tail			
males	51.3 ± 1.3 (50–53) <i>n</i> = 3	52.8 ± 3.5 (48–59) <i>n</i> = 9	56.3 ± 3.5 (51–62) <i>n</i> = 15
females	47.5 ± 0.5 (47–48) <i>n</i> = 2	46.3 ± 1.2 (45–48) <i>n</i> = 3	51.1 ± 3.3 (45–56) <i>n</i> = 13
Tarsus			
males	17.0 ± 0.8 (16.0–17.9) <i>n</i> = 3	16.5 ± 0.7 (15.3–17.2) <i>n</i> = 8	17.7 ± 0.6 (16.7–18.6) <i>n</i> = 15
females	16.5 ± 0.6 (15.9–17.0) <i>n</i> = 2	15.8 ± 0.6 (15.0–16.4) <i>n</i> = 3	16.7 ± 0.5 (15.7–17.8) <i>n</i> = 13

<sup>a</sup> Mean ± Standard Deviation.  
<sup>b</sup> Range  
<sup>c</sup> Sample size.

ber, pace, and rhythm (Fig. 1A–B). Introductory notes are of two types, one falling from 6 to 3.5 kHz and the other from 5 to 3.5 kHz. Sometimes short series of calls are given alone (Fig. 2A), but usually a series terminates in song (Fig. 1A–B). Both calls are distinct from the often heard, rhythmic call of *M. caniceps cinerea* (Fig. 2B) and from the single calls given by *M. c. caniceps* (Fig. 2C) and *M. gaimardii* (Fig. 2D). Song and calls are given from middle and upper levels of the forest while the birds follow mixed-species flocks, most frequently in the morning.

The calls and songs of *M. subplacens*, *M. viridicata*, *M. flavivertex*, and *M. gaimardii* (Fig. 2D) differ strikingly from those of *M. olallai* in both quality and pattern (unpubl.



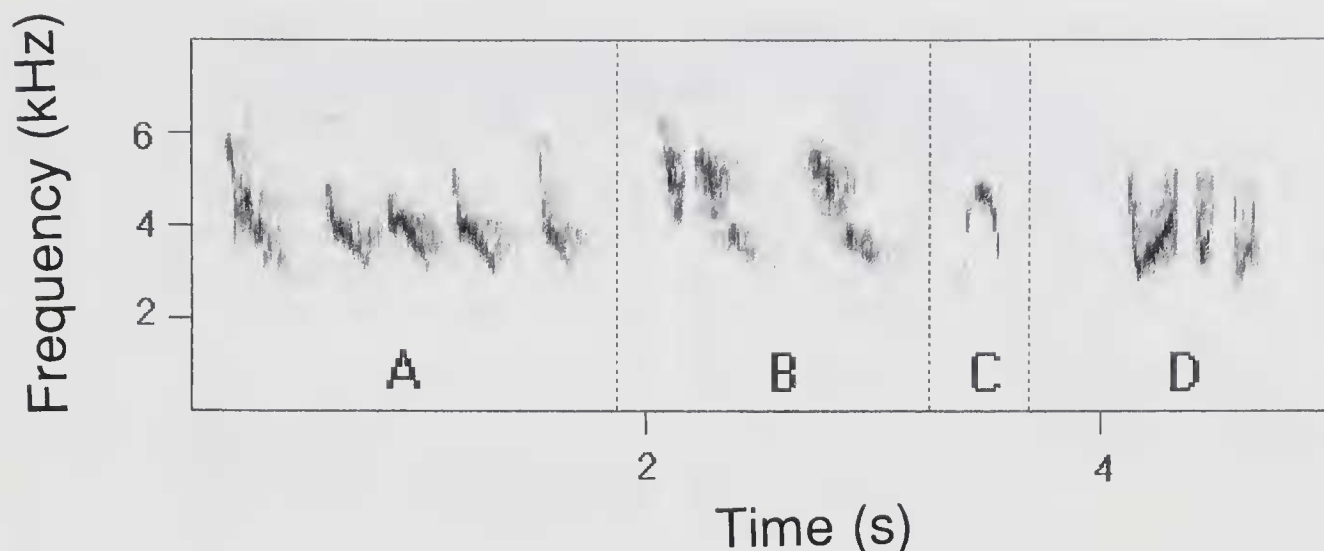


FIG. 2. Sonograms of calls of *Myiopagis* New World flycatchers. A. *M. olallai* (type locality, P.C., June 1992); B. *M. caniceps cinerea* (Napo, eastern Ecuador, N.K., October 1994); C. *M. c. caniceps* (Río Grande do Sul, south-eastern Brazil, W. Belton, November 1975, LNS 19532); D. *M. g. gaimardii* (song?; usual call without last two short notes; Napo, eastern Ecuador, R. S. Ridgely, July 1994; Moore 1997).

data). Only *M. caniceps* has vocalizations that superficially resemble those of *M. olallai*. Both species have songs consisting of a long series of notes; the song of *M. olallai* is a harsh, ascending trill (Fig. 1A–B) and that of *M. caniceps* is a distinctly different gradually descending series of softer notes (Fig. 1C–E). The pace is about 14 notes per second in *M. olallai* (Fig. 1A–B), whereas for *M. caniceps* it varies from 6–8 notes in *M. c. parambae* (Fig. 1E) and 9–10 notes in *M. c. cinerea* (Fig. 1D) to 21 notes in *M. c. caniceps* (Fig. 1C).

**Habitat.**—In Ecuador *Myiopagis olallai* has been found only in and at the edge of very humid to wet primary submontane forest. *Myiopagis gaimardii* occurs in both humid and deciduous forests and forest edges (Ridgely and Tudor 1994), although in eastern Ecuador deciduous forest is not found.

**Behavior.**—*Myiopagis olallai* has been encountered on 25 occasions (pers. obs.; M. Lysinger, D. and M. Wolf, pers. comm.). All observations were of pairs accompanying mixed-species flocks of the canopy and mid-levels. The birds frequently gave their distinctive song and calls (Fig. 1) and responded to

playbacks of their song by immediately approaching and singing. The white crown patch was visible during a few sightings, but it usually remained concealed even when the bird was highly excited. While singing after playback of their song, they perched vertically, half way out to near the tips of horizontal twigs and 2–15 m above the ground. While foraging, they perched almost horizontally and usually cocked their tails slightly. They were generally very active and frequently made short outward or upward sallies, briefly hover-gleaning prey from the uppersides and undersides of foliage, moss, twigs, and branches.

**Distribution.**—Known from the foothills (890–1500 m) of the eastern slope of the Andes in Ecuador and Peru (Fig. 3). In Ecuador known from three sites on the south slope of Volcán Sumaco, Napo Province (00° 43' S, 77° 33–38' W, 1000–1500 m) and from near Zamora, Zamora-Chinchipe Province (1000 m; type locality). In Peru known from 6 km east of Luisiana, Río Apurímac, depto. Ayacucho (12° 39' S, 73° 40' W, 890 m).

Presumably also occurs in intervening are-

FIG. 1. Sonograms of songs of *Myiopagis olallai* and *Myiopagis caniceps*. A. *M. olallai* (type locality, P.C., June 1992); B. *M. olallai* (type locality, P.C., June 1992); C. *M. c. caniceps* (Río Grande do Sul, southeastern Brazil, W. Belton, November 1975, LNS 19532); D. *M. caniceps cinerea* (Napo, eastern Ecuador, N.K., October 1994); E. *M. caniceps parambae* (Pichincha, northwestern Ecuador, P.C., February 1995).



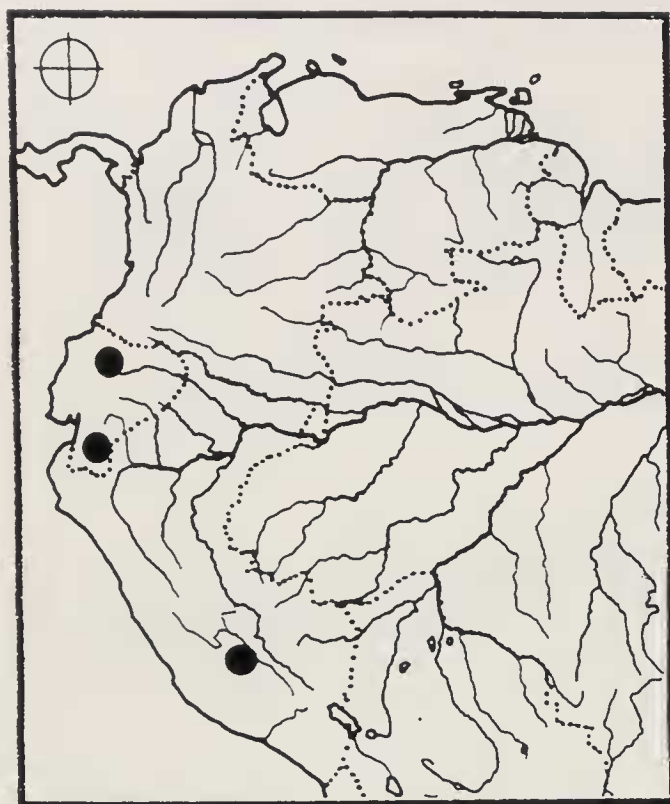


FIG. 3. Known localities of *Myiopagis olallai*. From north to south: Ecuador, Provincia de Napo, three sites in close proximity on the south slope of Volcán Sumaco ( $00^{\circ} 43' S$ ,  $77^{\circ} 33-38' W$ , 1000–1500 m); Ecuador, Provincia de Zamora-Chinchipe, 5 km south-southeast of Zamora, Río Bombuscaro ( $04^{\circ} 07' S$ ,  $78^{\circ} 58' W$ , 1000 m); Peru: Depto Ayacucho, Río Apurímac, 6 km east of Luisiana ( $12^{\circ} 39' S$ ,  $73^{\circ} 40' W$ , 890 m).

as, at least locally. More studies may reveal a wider elevational range, although the species appeared to be absent at Canelos, Pastaza Province, at 700 m elevation (pers. obs.). Like several other restricted range species, lower montane species of New World flycatchers (*Phylloscartes gualaquizeae*, *Phylloscartes orbitalis*, *Zimmerius cinereicapillus*, *Hemitricus ruficularis*), *Myiopagis olallai* is not known to range north of Volcán Sumaco in northern Ecuador, but few modern surveys have been undertaken in wet forests at similar elevations on the Amazonian slope in Colombia.

*Myiopagis olallai* is sympatric with *Myiopagis g. gaimardii*, which has been collected at Zamora, about 1000 m (3250 ft; AMNH 167583) and 6 km east of Luisiana, Río Apurímac, depto. Ayacucho ( $12^{\circ} 39' S$ ,  $73^{\circ} 40' W$ , 890 m elevation; AMNH 819932) and which was tape-recorded at 1100 m along the Narupa-Loreto road, just a few km from where

*M. olallai* was collected. These are the highest records of *M. g. gaimardii* we found (AMNH, ANSP, unpubl. data). Further studies are needed to determine any ecological differences where the two species meet. Although preliminary observations indicate that in the zone of overlap, *M. g. gaimardii* may prefer more secondary habitats, more data are needed. Elsewhere in its range, *M. caniceps* has been recorded as high as 1200 m (Ridgely and Tudor 1994), but we can find no definite records of this species from higher than 500 m on the east slope of the Andes (LSUMZ, AMNH, ANSP, unpubl. data.).

*Etymology*.—Named in honor of the late Alfonso Manuel Olalla, in appreciation of his unparalleled contribution to Neotropical ornithology. Of the over 70,000 specimens (most are housed in American Museum of Natural History, New York and Swedish Museum of Natural History, Stockholm) he and members of his family collected, notably his father Carlos and brother Ramón, he collected the vast majority, in Venezuela, Colombia, Ecuador, Peru, Bolivia, and Brazil. These specimens form the main basis of our knowledge of the distribution and variation of birds in many of these areas, especially in Amazonia.

## DISCUSSION

*Taxonomy and speciation*.—*Myiopagis olallai*, although well differentiated from congeners, is clearly a *Myiopagis*, exhibiting similar tarsal scutellation and possessing a small, horny spur at the edge of the wing near the tip of the alula, a character shared with only a few other tyrannid genera (*Zimmerius*, *Acrochordopus*; D. Agro, unpubl. data).

In external morphology *Myiopagis olallai* most closely resembles *M. caniceps* and *M. gaimardii*. It lacks the long, narrow shaggy crest feathers and ill-defined wingbars of *M. gaimardii*. The wing markings of *M. olallai* are strikingly similar to those of *M. caniceps*, and the quality of certain vocal notes also suggest that *M. caniceps* is the closest relative of *M. olallai* despite the lack of sexual dimorphism in the latter. We hope that future biochemical analysis will shed further light upon the taxonomic position of *M. olallai*.

*Myiopagis caniceps* itself consists of three song groups (Fig. 1C–E) that appear to coincide with the subspecies *M. c. cinerea* of

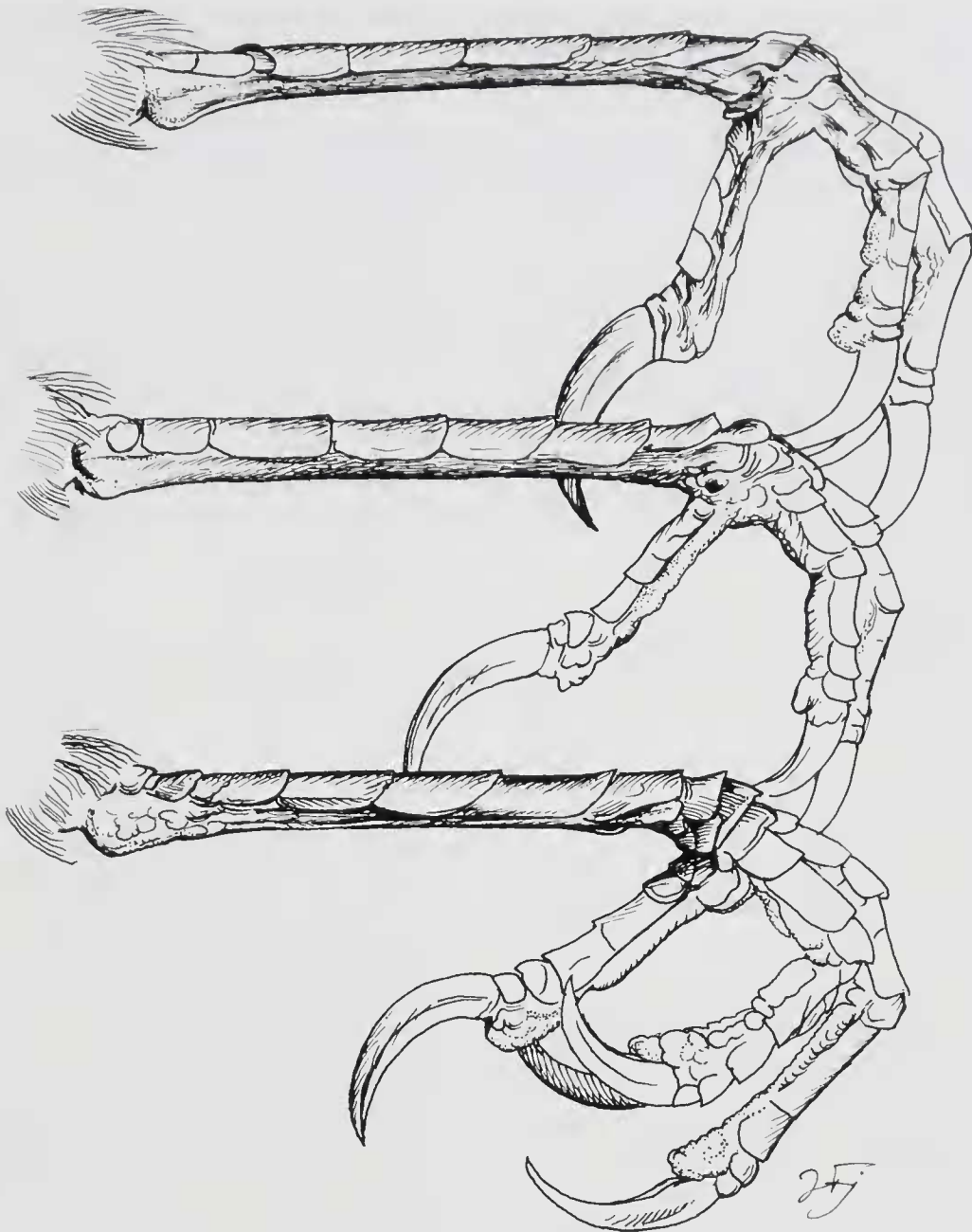


FIG. 4. Medial view of tarsus-metatarsus of *Myiopagis* and *Elaenia*. From top to bottom: *Myiopagis olallai*, *Myiopagis c. caniceps*, and *Elaenia albiceps griseigularis*. Drawing by J. Fjeldså.

Amazonia, *M. c. caniceps* from south-eastern Brazil and northern Argentina to Bolivia, and *M. c. parambae* of western Ecuador and Colombia (with *M. c. absita* of the Darién). They differ from each other to such an extent that species rank for each could be suggested following the guidelines of Isler and coworkers (1998). However, their pronounced sexual dimorphisms, unique in the genus, as well as qualitative similarities in their voice underline that they are more closely related to each other than to *M. olallai*. Because of our lack of sufficient data from elsewhere in South America, particularly in potential contact zones, we hesitate to change their traditional taxonomy.

**Conservation.**—*Myiopagis olallai* is known to occur in two national parks in Ecuador: Parque Nacional Sumaco-Galeras and Parque Nacional Podocarpus. Within these parks it only occurs at lower elevations, where the threat to the forest by invading settlers is most imminent. Forest at elevations occupied by *M. olallai* is disappearing at an alarming rate along the entire eastern slope of the Andes (see Robbins et al. 1992, Stotz 1999).

#### ACKNOWLEDGMENTS

We thank Ing. M. Moreno, MECN, for kind help in obtaining the permits for the collecting of the material and the export permit needed to make the compari-



sons; INEFAN, Quito, for kindly issuing these permits; F. Vuilleumier and M. LeCroy, AMNH, and D. Agro, ANSP, for kind help during the visits, and for letting N.K. compare the material; J. V. Remsen of Louisiana State University Museum of Zoology, and T. S. Schulenberg, Field Museum of Natural History for data on specimens of *M. caniceps* and *M. gaimardii*; P. Sweet, AMNH, for providing data on Olalla specimens in AMNH; D. H. and M. Wolf and M. Lysinger for sharing their field observations; R. Banks, United States National Museum, for advice on Latin grammar. The field work was generously funded by the Zoological Museum, University of Copenhagen, and the comparative work in AMNH and ANSP by a F. M. Chapman Foundation grant. The manuscript greatly benefitted from criticisms by M. Beaman, J. Fjeldså, P. Van Gasse, G. R. Graves, J. V. Remsen, M. B. Robbins, T. S. Schulenberg, and D. Stotz.

### LITERATURE CITED

- FITZPATRICK, J. W. AND J. P. O'NEILL. 1979. A new tody-tyrant from northern Peru. *Auk* 96:443–447.
- FITZPATRICK, J. W. AND D. F. STOTZ. 1997. A new species of tyrannulet (*Phylloscartes*) from the Andean foothills of Peru and Bolivia. *Ornithol. Monogr.* 48:37–44.
- GONZAGA, L. P. AND J. F. PACHECO. 1995. A new species of *Phylloscartes* (Tyrannidae) from the mountains of southern Bahia, Brazil. *Bull. Brit. Ornithol. Club* 115:88–97.
- GRAVES, G. R. 1988. *Phylloscartes lanyoni*, a new species of bristle-tyrant (Tyrannidae) from the lower Cauca Valley of Colombia. *Wilson Bull.* 100:529–534.
- ISLER, M. L., P. R. ISLER, AND B. M. WHITNEY. 1998. Use of vocalizations to establish species limits in antbirds (Passeriformes: Thamnophilidae). *Auk* 115:577–590.
- KRABBE, N. AND T. S. SCHULENBERG. 1997. Species limits and natural history of *Scytalopus tapaculos* (Rhinocryptidae), with descriptions of the Ecuadorian taxa, including three new species. *Ornithol. Monogr.* 48:46–88.
- KROODSMA, D. E. 1984. Songs of the Alder Flycatcher (*Empidonax alnorum*) and Willow Flycatcher (*Empidonax traillii*) are innate. *Auk* 101:13–24.
- MOORE, J. V. 1997. Ecuador—more bird vocalizations from the lowland rainforest. Vol. 3. J. V. Moore Nature Recordings, San Jose, California.
- RIDGELY, R. S. AND G. TUDOR. 1994. The birds of South America. Vol. 2. The suboscine passerines. Univ. of Texas Press, Austin.
- RIDGWAY, R. 1901. The birds of North and Middle America. *Bull. U.S. Natn. Mus.* 50(1):1–715.
- ROBBINS, C. S., J. W. FITZPATRICK, AND P. B. HAMEL. 1992. A warbler in trouble: *Dendroica cerulea*. Pp. 549–562 in *Ecology and conservation of neotropical migrant landbirds* (J. M. Hagan, Jr. and D. W. Johnston, Eds.). Smithsonian Institution Press, Washington, D.C.
- SCHULENBERG, T. S. AND T. A. PARKER III. 1997. A new species of tyrant flycatcher (Tyrannidae: *Tolmomyias*) from the western Amazon basin. *Ornithol. Monogr.* 48:723–731.
- SMITHE, F. B. 1975. Naturalist's color guide. American Museum of Natural History, New York.
- STEIN, R. C. 1963. Isolating mechanisms between populations of Traill's Flycatchers. *Proc. Am. Phil. Soc.* 107:21–50.
- STOTZ, D. F. 1999. Endemism and species turnover with elevation in montane avifaunas in the Neotropics: implications for conservation. Pp. 161–180 in *Conservation in a changing world* (G. M. Mace, A. Balmford, and J. R. Ginsberg, Eds.). Cambridge Univ. Press, Cambridge, U.K.
- TEIXEIRA, D. M. 1987. A new tyrannulet (*Phylloscartes*) from northeastern Brazil. *Bull. Brit. Ornithol. Club* 107:37–41.
- TRAYLOR, M. A. (Ed.). 1979. Check-list of birds of the world, 8. Museum of Comparative Zoology, Cambridge, Massachusetts.
- WILLIS, E. O. AND Y. ONIKI. 1992. A new *Phylloscartes* (Tyrannidae) from southeastern Brazil. *Bull. Brit. Ornithol. Club* 112:158–165.
- ZIMMER, J. T. 1941a. Studies of Peruvian birds, 36. The genera *Elaenia* and *Myiopagis*. *Am. Mus. Novit.* 1108:1–23.
- ZIMMER, J. T. 1941b. Studies of Peruvian birds, 37. The genera *Sublegatus*, *Phaeomyias*, *Camptostoma*, *Xanthomyias*, *Phyllomyias*, and *Tyranniscus*. *Am. Mus. Novit.* 1109:1–25.